

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

AMAZON.COM, INC.,

Plaintiff,

v.

DISCOVERY COMMUNICATIONS, INC.,

Defendant.

No. C09-0681RSL

ORDER CONSTRUING CLAIMS

Plaintiff Amazon.com, Inc., is the owner of United States Patent No. 6,006,225 and United States Patent No. 6,169,986 (together “the search patents”) which relate to a system that helps a website user refine his search query by proposing additional query terms that, based on historical query submissions, correlate with the original search terms. Amazon.com also owns United States Patent No. 6,266,649 and United States Patent No. 6,317,722 (together “the recommendation patents”) which relate to a system that filters information regarding the known interests of a community of website users to generate personalized recommendations of items for the user. The parties disagree regarding the interpretation of eight concepts used in the claims of the search and/or recommendation patents.

The claims of the patent define the invention and the scope of the patentee's right to exclude. Halliburton Energy Servs., Inc. v. M-I LLC, 514 F.3d 1244, 1249 (Fed. Cir. 2008). The Supreme Court has determined that the proper construction of the asserted patent claims

ORDER CONSTRUING CLAIMS

1 must be decided by the Court as a matter of law. Markman v. Westview Instruments, Inc., 517
 2 U.S. 370, 384-91 (1996). If a term must be construed, the Court focuses on how a person of
 3 ordinary skill in the art at the time the patent application was filed would have understood the
 4 terms in light of the entire patent. Phillips v. AWH Corp., 415 F.3d 1303, 1321, 1323 (Fed. Cir.
 5 2005).

6 It is the person of ordinary skill in the field of the invention through whose eyes
 7 the claims are construed. Such person is deemed to read the words used in the
 8 patent documents with an understanding of their meaning in the field, and to have
 9 knowledge of any special meaning and usage in the field. The inventor's words
 10 that are used to describe the invention -- the inventor's lexicography -- must be
 11 understood and interpreted by the court as they would be understood and
 12 interpreted by a person in that field of technology. Thus the court starts the
 13 decisionmaking process by reviewing the same resources as would that person,
 14 viz., the patent specification and the prosecution history.

15 Phillips, 415 F.3d at 1313 (quoting Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473,
 16 1477 (Fed. Cir. 1998)).

17 The Phillips decision sets out a framework for claim construction that synthesizes
 18 prior law while rejecting the earlier tendency to over-emphasize extrinsic evidence. The claims
 19 themselves, rather than dictionaries, encyclopedias, and treatises, provide a context for the
 20 contested terms and comparisons against which to measure the scope of the various claims.
 21 Phillips, 415 F.3d at 1314-15. Unless the meaning of the claim language is "readily apparent
 22 even to lay judges" (Phillips, 415 F.3d at 1314), the court should "rely heavily" on the patentee's
 23 written description of the invention (Phillips, 415 F.3d at 1317), giving the claims "their
 24 broadest reasonable construction 'in light of the specification as it would be interpreted by one
 25 of ordinary skill in the art'" (Phillips, 415 F.3d at 1316 (quoting In re Am. Acad. of Sci. Tech.
 26 Ctr., 367 F.3d 1359, 1364 (Fed. Cir. 2004))).¹ Other evidence of how the patentee and the PTO

¹ Defendant's reliance on Halliburton, 514 F.3d at 1253-54, for the proposition that ambiguous claim language should always be construed narrowly is misplaced. Halliburton involved a challenge to

1 understood the claims contained in the prosecution history can also inform the meaning of the
2 claim language, although the Federal Circuit warns that this resource sometimes lacks the clarity
3 of the patent itself. Phillips, 415 F.3d at 1317.

4 When interpreting claim terms, district courts may also “rely on extrinsic evidence,
5 which ‘consists of all evidence external to the patent and prosecution history, including expert
6 and inventor testimony, dictionaries, and learned treatises.’” Phillips, 415 F.3d at 1317 (quoting
7 Markman, 52 F.3d at 980). Such evidence is especially useful for helping the court understand
8 the underlying technology, explaining how an invention works, and establishing the way in
9 which one skilled in the art would use the claim terms. Phillips, 415 F.3d at 1318. Courts
10 should not, however, put too much emphasis on extrinsic evidence as the starting point for
11 construing claim terms because such evidence “is unlikely to result in a reliable interpretation of
12 patent claim scope unless considered in the context of the intrinsic evidence.” Phillips, 415 F.3d
13 at 1319. The claim construction methodology set forth in Texas Digital Sys., Inc. v. Telegenix,
14 Inc., 308 F.3d 1193 (Fed. Cir. 2002), which encouraged district courts to rely on dictionary
15 definitions when ascertaining the ordinary meaning of particular claim terms, with recourse to
16 the specification serving only as a check on the dictionary definition, was rejected.

17 The main problem with elevating the dictionary to such prominence is that it
18 focuses the inquiry on the abstract meaning of words rather than on the meaning of
19 claim terms within the context of the patent. Properly viewed, the “ordinary
20 meaning” of a claim term is its meaning to the ordinary artisan after reading the
21 entire patent. Yet heavy reliance on the dictionary divorced from the intrinsic
22 evidence risks transforming the meaning of the claim term to the artisan into the
23 meaning of the term in the abstract, out of its particular context, which is the
24 specification.

24 the definiteness of the claims under 35 U.S.C. § 112, ¶ 2. In the face of a definiteness problem, the
25 Federal Circuit is willing to adopt a narrow construction to stave off a finding of invalidity as long as
26 there is an enabling disclosure that satisfies the notice function of the claims as to the narrower
construction. Where the patentee has particularly pointed out and distinctly claimed the subject matter
of his invention, however, he is entitled to the broadest reasonable construction of the claim terms.

1 Phillips, 415 F.3d at 1321.

2 In the interest of clarity, the Court will construe the disputed claims of the search
3 patents, then proceed to the disputed claims in the recommendation patents. Having reviewed
4 the memoranda and exhibits submitted by the parties and having heard the arguments of counsel
5 on December 16, 2010, the Court finds as follows:

6 **Search Patents**

7 Many of the disputed terms are used throughout the search patents in various
8 formulations: “refine,” for example, also appears as “refining,” “refinement,” and
9 “refinements.” Because any construction ascribed to the disputed terms will have equal effect
10 throughout the various claims at issue, the Court starts with claim 1 of the '225 patent,
11 reproduced here with the disputed terms in italics:

12 1. In a computer system that implements a search engine which is accessible to a
13 community of users, a method of assisting users in *refining* search queries to enhance
14 discovery, the method comprising the computer-implemented steps of:

- 15 (a) processing search queries submitted to the search engine by a plurality of users
16 over a period of time to generate *query term correlation data*, the *query*
17 *term correlation data* reflecting frequencies with which query terms appear
18 together within the same search query;
- 19 (b) receiving a search query from a user, the search query including at least one
20 query term;
- 21 (c) using at least the *query term correlation data* to identify a plurality of
22 additional query terms that are deemed to be related to the at least one query
23 term; and
- 24 (d) presenting the plurality of additional query terms to the user for selection to
25 allow the user to *refine* the search query.
- 26

1 **1. “Refine”**

2 The term “refine” is in dispute.² Plaintiff argues that the term need not be
3 construed and that its widely accepted meaning should govern. If construction is necessary,
4 plaintiff offers “introduce change intended to improve results.” Defendant argues that the term
5 “refine” should be construed as it is used in the claims and specification to mean “the addition of
6 one or more query terms to the original search query based on correlations between each term of
7 the search query and the additional query term or terms in a history of search queries received by
8 the search engine.”

9 The Court will not incorporate into the term “refine” limitations regarding the
10 nature of the resulting query and/or the method by which the proposed refinements are
11 generated. “Refine” is not defined in the claims or the specification. It is a broad term
12 conveying the idea of change or alteration in a hopefully positive direction. Concepts regarding
13 the outcome of the change or the method by which the change is made are logically separate
14 from the term “refine.” In fact, those concepts and limitations are presented elsewhere in the
15 claims. Claim 10 of the ‘986 patent, for example, specifies that the refined search query will be
16 comprised of “all terms of the query submitted by the user and an additional term.”
17 Incorporating the concept of an addition into the broader term “refine” would impose limitations
18 not inherent in the claim language or create redundancies. See RF Del., Inc. v. Pac. Keystone
19 Techs., Inc., 326 F.3d 1255, 1263-64 (Fed. Cir. 2003).

20 The Court construes the term “refine” to mean “change or alter with the intent to
21 improve.”

22
23
24 ² In their “Joint Claim Construction and Prehearing Statement” (Dkt. 108), the parties identify
25 the phrase “refine the search query” as the subject of dispute. The parties have, however, agreed that
26 “search query” should be construed as “term or string of terms for submission or submitted to a search
engine.” Because there is no dispute over the meaning of “the search query,” the Court confines its
discussion to the term “refine.”

2. “Query Term”

The parties disagree about whether a “query term” means only a single word or whether it also comprehends two or more individual words which, taken together, have a particular meaning. The phrase is not defined in the patent. Defendant maintains that because “the claims and common specification of the Amazon Search patents never use ‘term’ or ‘query term’ to refer to multiple words,” the Court should construe “query term” as “an uninterrupted string of characters,” *i.e.*, a single word.

The patentees chose to use the word “term,” rather than “word,” in the claims. The ordinary meaning of “term” includes multi-word phrases that, taken together, convey a particular meaning. “United States of America,” for example, is more than simply the sum of its parts: the four-word term conveys a meaning separate from “states,” “united,” and/or “America.” One of ordinary skill in the art would understand that correlation data can be collected and stored for multi-word terms as well as single-word terms. The Court will not read into the claim a limitation that is merely suggested by the examples in the specification.

The Court construes the term “query term” to mean “a word or string of words which, taken together, convey a particular meaning.”

3. “Correlation”

As presented by the parties, the “correlation” dispute turns on whether the items being correlated are individual words, one to another, or strings of words. The Court has already construed “query term:” no other construction of “correlation” is necessary. Because a “query term” can include two or more individual words which, taken together, have a particular meaning, “correlations” and the “correlation data” may reflect the frequency with which single- or multi-word terms appear together in the same search query.

1 **4. “Successful Query”**

2 Claim 3 of the ‘225 patent states:

3 3. The method of claim 1, wherein the search query includes multiple query terms, and
4 step (c) comprises the sub-steps of:

5 (c1) for each of the multiple query terms, identifying a set of terms that have
6 previously occurred in combination with the respective query term within a
7 *successful query*; and

8 (c2) selecting, as the additional terms, a set of terms that are common to all of the
9 sets identified in step (c1).

10 The term “successful query” is in dispute. The patentees, apparently realizing that “success” is
11 an amorphous concept, explained what they considered a “successful query” in the specification.
12 According to the inventors, a “successful query result” is a query submission that produces at
13 least one match (Col. 2: ll. 42-46; Col. 4: ll. 18-22) or results in an item count that is greater than
14 zero (Col. 9: ll. 50-55). An “unsuccessful” query, on the other hand, is a query submission that
15 produces a NULL result (*i.e.*, no responsive items). Col. 9: ll. 44-55. Based on these
16 formulations, plaintiff argues that a successful query is one that produces a result in which the
17 item count is greater than zero.

18 Defendant argues that there are material differences between the “at least one
19 match” and the “item count greater than zero” formulations of “successful query.” In
20 defendant’s view, the “at least one match” language requires not only that a query generate an
21 item count greater than zero, but also that the identified item have some sort of “logical nexus or
22 meaningful relationship” to the terms in the query. Dkt. # 117 at 11. There is no support in
23 either the claims or the specification for incorporating a qualitative element into the definition of
24 “match.” The inventors used non-matching, NULL result, and zero items found as functional
25 equivalents. Col. 6: ll. 8-11 (“Thus, if any query term does not produce a match (referred to
26 herein as a ‘non-matching term’), the query will produce a NULL query result.”); Col. 9: ll. 44-

45 (“NULL query result (items_found=0)”). For purposes of the ‘225 patent, a search that results in an item has generated a match. Whether the item is logically correlated to the terms of the search query does not determine the success or failure of the search.

The Court construes the term “successful query” to mean “a query that produces a result in which the item count is greater than zero.”

Recommendation Patents

As was the case with the search patents, many of the disputed terms are used throughout the recommendation patents in various formulations. Because any construction ascribed to the disputed terms will have equal effect throughout the claims at issue, the Court starts with claim 1 of the ‘649 patent, reproduced here with the disputed terms in italics:

1. In a multi-user computer system that provides user access to a database of items, a method of recommending items to a user, the method comprising the computer-implemented steps of:

- (a) generating a *non-user-specific data structure* which maps individual items of the database to corresponding sets of *similar items* in which similarities between items are based at least upon the collective *item interests of a community of users*;
- (b) identifying *items that are known to be of interest to the user*;
- (c) for each of a plurality of the *items identified in step (b)*, accessing the data structure to identify a corresponding set of *similar terms*;
- (d) combining the sets of *similar items* identified in step (c) to generate a combined set of additionally *similar items*; and
- (e) recommending at least some of the *similar items* of the combined set generated in step (d) to the user;

wherein step (a) is performed in an *off-line mode*, and steps (b)-(e) are performed substantially in real time in response to an online action by the user.

5. “Items of Interest”

In one section of their memoranda, the parties present a number of disparate terms and phrases – “items that are known to be of interest to the user,” “similar items,” “item interests of a community of users,” and “related products” – for construction. It is not clear what claim term or concept is in dispute: the claim language cited by the parties is not technical, nor are the words combined in a way that is unusual or ambiguous. In fact, defendant acknowledges that “interests” is readily understood and needs no construction. Dkt. # 113 at 18. Defendant seems to be arguing that, in order for an item to be “of interest” to a user or community of users, the user or users must take some affirmative action, such as viewing, purchasing, or favorably rating at item, to indicate that they in fact like or have an affinity for the item.

Although it is true that gaging user interest based on affirmative conduct is probably the most accurate predictive method, it is not the only method disclosed. The language of claim 1 does not limit “interests” or “similarity” to express or affirmative indications of interest in an item. Nor would one skilled in the art, having read the words used in the patent documents, understand that the invention requires that users take some action to make their interests known. The specification teaches that any source of information regarding a user’s liking of or affinity for an item, including the content of the user’s credit card records and/or the content of the “Favorites” list on the user’s web browser, can be used to determine a user’s known interest for purposes of developing a list of recommended items. Col. 8: ll. 38-49.³ The specification also contemplates situations in which the items viewed, purchased, or favorably rated by the user do not correspond with any database lists of similar items. In such circumstances, the recommendation service may be terminated or it “could attempt to identify additional items of interest, such as by accessing other sources of interest information.” Col 10:

³ At oral argument, defendant conceded that user interest could be determined by parsing credit card records and url “Favorites” lists, but argued that these sources fit within its proposed definitions because they are actually based on the user’s past actions, however distant and/or indirect.

1 ll. 46 - Col. 11; ll. 3. The inventors specifically note that tables of similar items could be
 2 generated based on purchasing and viewing histories, but they “could also reflect non-
 3 collaborative type item similarities, including content-based similarities derived by comparing
 4 item contents or descriptions.” Co. 9; ll. 12-15. There is nothing in the claims or specification
 5 that excludes from the scope of the patent an embodiment that provides a list of recommended
 6 items based not on the user’s affirmative actions, but only on information that was mined from
 7 indirect sources.⁴

8 The terms “items of interest” and “similar items,” standing alone, do not limit the
 9 means by which interest or similarity can be measured or determined. Such limitations are
 10 imposed elsewhere in the claims. Claim 8 of the ‘649 patent, for example, specifies that the
 11 items of interest to the user are those that are currently in the user’s shopping cart, while claim 9
 12 utilizes items that were previously purchased by the user. Incorporating these limitations into
 13 the terms at issue here would either impose limitations that are not inherent in the claim
 14 language or create redundancies.

15 **6. “Non-User-Specific Data Structure”**

16 The ‘649 patent claims a “non-user-specific data structure which maps individual
 17 items of the database to corresponding sets of similar items in which similarities between items
 18 are based at least upon the collective item interests of a community of users.” The parties agree
 19 that the data structure cannot be generated for the purpose of providing recommendations to a
 20 particular user.

21 Defendant argues that the “data structure” must be construed as a database, table,
 22 or b-tree because those are the structures that are disclosed in the specification. This proposed
 23 limitation is not supported by the language of the claim or required by the specification. The
 24

25 ⁴ Although claim 1 is written broadly enough that one skilled in the art would realize that
 26 various sources of information could be used to determine a user’s interest in a particular item, that
 interest must be “known” and not merely hypothesized or statistically predicted.

1 inventors generically describe the format in which the similar item data can be maintained.
2 Although the specification discusses databases, tables, and b-trees, there is no indication that one
3 skilled in the art would understand that the invention was limited to an embodiment which
4 utilized one of those structures. Plaintiff's invention – a method for generating personalized
5 recommendations of items based on the collective interests of a community of users – in no way
6 depends on the exact type of structure in which the data is kept, as one skilled in the art would
7 have recognized in 1998.

8 Although the parties have not designated “based at least upon the collective item
9 interests of a community of users” as a disputed term, they clearly disagree over the meaning of
10 that phrase. Plaintiff suggests that, because an item of interest can be ascertained using sources
11 of information other than affirmative user actions, the non-user-specific data structure if claim 1
12 can be populated solely with content-based similarities (*i.e.*, data that is generated by comparing
13 items without any reference to the interests of the community of users). Defendant points out,
14 however, that while content-based similarities can be included in the data structure, claim 1
15 specifically requires that community interests comprise at least part of the data populating the
16 structure. Plaintiff cannot ignore this limitation.⁵

17 **7. “Off-Line Mode”**

18 Pursuant to claim 1 of the ‘649 patent, the non-user-specific data structure
19 discussed above is generated “in an off-line mode,” while the other steps of the claim are
20 “performed substantially in real time in response to an online action by the user.” Plaintiff
21 argues that “off-line mode” imposes a temporal limitation: the data structure must be generated
22 prior to and independently of the presentation of recommendations to an individual user.
23 Defendant, on the other hand, argues that the common industry definition of “off-line mode”

24
25 ⁵ The non-user-specific data structures of claim 33 of the ‘649 patent and claim 11 of the ‘722
26 patent, on the other hand, are not so limited and can apparently be generated based solely on content-
based comparisons.

1 involves a lack of connection between a computing device and a network or program, such that
2 the term should be construed as “not connected to the computer on which the user performs an
3 online action.”

4 Read in the context of the claims and the specification, one skilled in the art would
5 understand that the limitation includes both temporal and connectivity components. The term
6 “off-line” would convey to one skilled in the art a computational separation, while the remainder
7 of the phrase indicates a temporal separation. One of the highlighted benefits of the invention is
8 that it separates “the relatively computation-intensive task of correlating item interests” from the
9 generation of personal recommendations so that the latter task can be achieved rapidly and
10 efficiently without sacrificing the breadth of the search for items in which the user might be
11 interested. Col. 3: ll. 30-37. The Court therefore concludes that the generation of the non-user-
12 specific data structure does not occur in response to an online action by the user and does not
13 rely upon the computational power of the user’s computing device. The data structure must,
14 however, be available to the user’s computer so that the data structure can be accessed as
15 specified in claim 1(c).

16 **8. “Similarity Score”**

17 Claim 4 of the ‘649 patent is a dependent claim wherein the non-user-specific data
18 structure of claim 1 involves the identification of popular items in the database and an analysis
19 of a community’s purchasing history to determine which other items are purchased along with
20 the popular items. Claim 4 discloses the calculation of a “similarity score” for each pair of items
21 (popular and other) “which reflects a number of users that purchased both the popular item and
22 the other item relative to a number of users that purchased at least one of the popular items and
23 the other item.” Other claims of the ‘649 patent use different parameters or comparisons to
24 calculate the “similarity score.” Claims 5 and 17, for example, compare users’ expressions of
25 interest in each of the items in the pair, rather than actual purchases of those items. Claims 16
26 and 19 determine similarities and similarity scores “by at least analyzing historical data that

